SECRETARY OF ENERGY ADVISORY BOARD

TERMS OF REFERENCE

National Ignition Facility (NIF) Laser System Task Force

Objectives and Scope of Activities:

The Task Force will focus on the engineering and management aspects of the proposed revised method for accomplishing the assembly and installation of the National Ignition Facility (NIF) laser system. The review will provide independent external advice and recommendations to the Secretary of Energy Advisory Board on the options to complete the National Ignition Facility (NIF) Project and recommend the best technical course of action. The Task Force will also review and assess the risks of successfully completing the NIF Project.

Background:

The National Ignition Facility, under construction at the Lawrence Livermore National Laboratory (LLNL), is the cornerstone of the science-based Stockpile Stewardship program and is required for U.S. support of the Comprehensive Test Ban Treaty. When completed, NIF will be the world's most powerful laser, with 50 times more energy than any existing laser. Consisting of up to 192 laser beams, the NIF will produce, for the first time in a laboratory setting, conditions of matter close to those that exist at the center of stars and inside detonating nuclear weapons. This ability can be used directly for physics experiments to increase understanding of the performance of nuclear weapons without further need for nuclear testing. NIF experiments are also essential to demonstrating the feasibility of fusion energy. An additional benefit of NIF is that it would provide substantial opportunities for advances in science and technology including laboratory astrophysics, optics, and materials.

The current NIF schedule calls for the project to be completed at the end of FY 2003 at a cost of $1.2 B. The conventional facilities are about 70% complete now and should be completed by the end of FY 2001. Recent data and experience along with analysis of related engineering experience has demonstrated that the assembly and installation of the laser system must be done in a cleaner and more rigorous and detailed manner than had been originally planned. This change in approach is considered essential for achieving the required laser performance. This change will add costs in the range of several hundred million dollars.

It is essential to have confidence that the revised engineering and management approach will provide a complete and functional laser facility at the requirements set for the NIF for a known cost.

Description of the Task Force's Duties:

The Task Force should conduct a thorough in-depth review and assessment the risks of successfully completing the NIF Project. The focus should be the engineering and management aspects of the proposed method for accomplishing the assembly and installation of the NIF laser system. The review should cover the full scope of assembly and installation and the ability within the proposed approach to achieve the cleanliness requirements established for the operation of the laser. To ensure that the options being considered by the Department are credible, the analysis should review, as a minimum: (1) the engineering viability of the proposed assembly and activation method; (2) the assembly and installation cleanliness protocols; (3) the management structure; and (4) the adequacy of the cost estimating methodology.

Reporting:

The Task Force shall prepare a report or series of reports to the Secretary of Energy Advisory Board. An interim report is requested by December 1, 1999 to meet programmatic needs.

Estimated Number and Frequency of Meetings:

The Task Force is expected to meet approximately four times. Meetings will be scheduled as the Task Force chair deems necessary for the Task Force to accomplish its duties and purposes.

Members:

The Task Force's membership shall reflect a balance of expertise and viewpoints. Members shall include members of the Secretary of Energy Advisory Board, as well as members who have expertise in areas such as ultra-clean manufacturing, systems engineering, laser science, and large-scale project management.

Chairperson:

The Secretary of Energy shall designate a chair or two co-chairs for the Task Force.

Working Groups:

To facilitate the functioning of the Task Force, the Task Force may establish working groups on its own initiative. The objective of the working group would be to undertake fact finding and analysis on behalf of the Task Force. The Chair or Co-Chairs, in consultation with the Department, will appoint members of the Task Force to working groups. The working groups shall meet as the Task Force deems appropriate.

Duration and Termination Date:

This Task Force charter shall expire six months from the date of establishment, subject to extension or dissolution by the Chairman of the Secretary of Energy Advisory Board.